Appendix E

Conformity Analysis Estimate

The air quality analysis for ozone precursors examined three aspects of construction:

- On-site excavation, loading, and vehicle activity
- Off-site hauling of soil
- Worker vehicle travel

An emissions estimate was prepared for the organic gases (ROG), and oxides of nitrogen (NOx), due to the non-attainment status of the San Francisco Bay Area for ozone.

A conservative yearly estimate was used to compare with EPA and BAAQD conformity thresholds for ozone precursors. All construction activity during was assumed to be conducted 8 hours a day for 250 days per year.

Construction Vehicle Activity Emissions Estimates

This section describes the methodology used to estimate the construction equipment and vehicles on-site, number of hauling dump trucks, number of workers, worker commute trips, and haul trips associated with remediation activity. The assumptions about vehicles, equipment, and trips are the same as noted in Appendix C.

Construction Equipment and Vehicles On-Site

The type and number of construction vehicles needed for remediation activity were estimated. For this project, a maximum of eight scrapers/excavators and two loaders would presumed to be needed for earthmoving and haul truck loading at any one time. Scrapers/excavators were assumed to be the primary type of equipment used to both excavate and move soil on-site. The use of more than eight scrapers for this project could result in congestion problems because the vehicles would start to interfere with each other. A maximum of two loaders

was presumed to fill trucks for either on-site soil movement or off-site soil hauling.

In addition to the scrapers/excavators and loaders, eight on-site dump trucks were assumed to be needed to move soil on-site, for fuel supply, for wetting down dry soil, for maintenance, and other on-site activity. A total of eighteen construction vehicles are assumed to be used on-site at the peak of remedial activity.

Dump Trucks for Hauling Soil Off-Site

An estimated 8-40 cubic yard dump trucks were presumed to support the off-site hauling activity.

Construction Employees

The number of employees was estimated by assuming one employee per construction vehicle, for a total of 26 employees.

Daily Worker Commute Trips

The number of daily worker trips was estimated. Each worker was presumed to arrive in his or her own personal vehicle. Thus, fifty-two daily commute trips were estimated for this project: 26 trips during the morning commute and 26 trips during the evening commute. In addition, 26 additional trips during the lunch hour were presumed, assuming that half of the workers go off-site for lunch or to run errands.

Soil Hauling Trips

As noted above, a total of 8 large dump trucks are presumed to be in use to haul soil off to appropriate disposal sites. The characterization of the material will determine the requisite disposal site. As a conservative estimate, it was presumed that 90 percent of the soil is hauled to the Altamont Landfill in Alameda County; 5 percent to the Redwood Sanitary Landfill in Novato; and 5% to the Kettleman Hills Landfill in Kettleman City. An average truck trip length was presumed based on this apportionment. Each dump truck was assumed to make two runs per day, resulting in a total of 32 trips per day.

Emissions Estimate

The assumptions above were then used to estimate the maximum yearly emissions. As shown in Table E-1, the estimates of total annual emissions from

construction activity during remediation of NOx and ROG are 40 tons and 3 tons, respectively. These amounts are less than the EPA conformity thresholds of 100 tons and 50 tons respectively.

The assumptions used were conservative, and this estimate probably overestimates the amount of annual emissions in the busiest remediation year. For example, the estimate presumes hauling of soil for 250 days/year, based on 8 dump trucks making 2 trips/day. Presuming 40 cubic yards/truck, this amounts to 160,000 cubic yards in one year; whereas the total estimated volume of soil to be off-site is under 80,000 cubic yards. Similarly, the average amount of daily on-site activity is likely to be less than that assumed in this estimate.

Table E-1: Emissions Estimate for Construction Vehicles				
Commute Assumptions - Construction				
Workers (at peak)	26			
Haul Trucks (at peak)	8			
Construction days/year	250			
Haul Trip Distance (One-Way)	**Miles**	**Assumed %**	**Scaled Miles**	
Redwood Sanitary Landfill	9	5	0.45	
Altamont Landfill	68	90	61.2	
Kettleman Hills Landfill	232	5	11.6	
Average for estimate			73.25	
Daily miles (max.)	**Commute**	**Lunch**	**Dump trucks**	
Miles (one-way, average)	15	5	73.25	
Trips/day	52	26	32	
miles/day	780	130	2344	
Emission Factors (lbs/hr) - Construction On-site				
	ROG	**NOx**	**Load Factor**	**# of Equipment**
Scraper/Excavator	0.27	3.84	0.66	8
Tracked Loader	0.095	0.83	0.465	2
Off-Highway Truck	0.19	4.17	0.41	8
Emission Factors (grams/mile) - Construction Commute and Hauling Off-site				
	ROG	**NOx**	**Load Factor**	**# of Equipment**
Dump Truck	1.22	8.45	1	8
Auto	0.2	0.39	1	26
Emission in Tons/Year - Construction				
	ROG	**NOx**		
Emission for Construction On-Site	2.14	34.72		
Emission for Commute/Lunch	0.04	0.08		
Emission for Soil Hauling Off-site	0.79	5.45		
Total Construction	***3.0***	***40.3***		
Conformity Threshold	50	100		